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## *USSR: Early October Grain Harvest Prospects*

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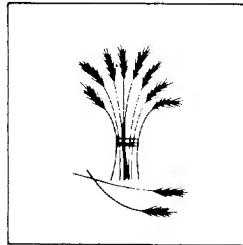
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## Environment and Resource Analysis Brief

### USSR: Early October Grain Harvest Prospects

#### SUMMARY

We now estimate 1977 Soviet grain production at 215 million to 220 million tons—a range slightly under our early September projection of 220 million tons. The reduction in our estimate mostly reflects lower wheat production east of the Ural mountains and an adjustment in corn acreage. Total output may be boosted to the higher end of our range by the harvest of secondary growth in Kazakhstan and the use of silage corn for grain. The most recent U.S. Department of Agriculture estimate puts the crop at 215 million tons.

By early October, approximately 95 percent of this year's crop had been harvested. Most of the corn remains to be cut in the Ukraine and several million hectares of wheat are still standing in Kazakhstan and West Siberia. Continued favorable weather conditions will allow the harvest to be completed before winter.

Fall field work has progressed well with only 15 percent of the fall crop, mostly grain, remaining to be seeded. Conditions thus far have favored germination and emergence of most of the winter grains.

Note: This paper was produced by the Office of Geographic and Cartographic Research and coordinated with the Office of Economic Research. Comments and questions may be directed to [redacted] 351-3748. Date of information 7 October 1977.

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**TOTAL GRAIN PRODUCTION**

As of early October, we estimate this year's grain crop at 215 million to 220 million tons, a range somewhat below our early September estimate of 220 million tons. If achieved, this year's harvest would be exceeded only by output in 1973 and by last year's record production of about 224 million tons (see Table).

By early October, roughly 95 percent of the small grain area was harvested with most of the remaining area in northern Kazakhstan and West Siberia. In addition, roughly three-quarters of the corn fields and half of the rice area remain unharvested. This late in the season, our new forecast reflects greater-than-normal uncertainty. Such uncertainty is centered on the extent that secondary plant growth will contribute to output in Kazakhstan and on the eventual size of the corn harvest.

Grain yields reported in the Soviet press have thus far supported our estimate of a second consecutive bumper crop. Winter wheat yields reached a new high in Moldavia and were excellent across most of the Ukraine. Unusually wet conditions in parts of the northern Ukraine, Belorussia, and the Baltics increased harvesting losses, but available reports indicate that yields remain above the average for the past five years. East of the Urals, regional yields have not been reported despite the late stage of the harvest. However, yields [REDACTED]

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[REDACTED] are good to excellent [REDACTED] in eastern Kazakhstan and West Siberia, average in much of the Urals, and below average in southern Kazakhstan and in the southern Urals. [REDACTED]

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[REDACTED] a continuing moisture deficit in parts of the middle Volga region. As a result we have reduced our estimate of wheat production in this region by one million to two million tons.

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Much of the uncertainty in our current estimate is prompted by late-season conditions in Kazakhstan. Insufficient rainfall in much of the area has cut our estimate of grain production in the republic from 22 million tons to 18 million to 21 million tons, with most of the shortfall

**USSR: TOTAL GRAIN PRODUCTION**

	1972	1973	1974	1975	1976	1977	Estimated
<b>TOTAL</b>	168.2	222.5	195.7	140.1	223.8	215.0-220.0	
of which							
wheat	86.0	109.8	83.9	66.2	96.9	99.0-102.0	
rye	9.6	10.8	15.2	9.1	14.0	9.5	
barley	36.8	55.0	54.2	35.8	69.5	62.5	
oats	14.1	17.5	15.3	12.5	18.1	18.0	
corn	9.8	13.2	12.1	7.3	10.2	10.0-12.0	
other <sup>1</sup>	11.9	16.2	15.0	9.2	15.1	16.0	

<sup>1</sup> Other includes rice, millet, buckwheat, and pulses.

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in wheat output. Very different conditions existed in much of northern Kazakhstan where abundant mid-summer rainfall renewed plant growth (see map and imagery). Harvest operations were postponed to allow these secondary tillers to develop, at the risk of increased losses from early frosts.<sup>1</sup> The gamble will evidently pay off. Weather during September was favorable, without severe frost in the area of secondary growth. As a result, secondary tillering will offset some of the losses sustained in other parts of the republic. The amount added is not yet known, however, accounting for the range for our estimate for Kazakhstan.

There is more-than-normal uncertainty about the size of this year's corn harvest as well. Our current estimate puts production at 10 million to 12 million tons, slightly under our last estimate of 12 million tons. Harvesting progress reports in the Soviet press indicate that the corn for grain area may total as much as a half-million hectares less than official seeding statistics used in our September forecast. The reports are in conflict with announced plans to expand corn production by harvesting grain from corn fields normally used for ensilage. Additions to the harvested area will be lower yielding but could lead to significant increases in total output—perhaps amounting to one million to two million tons of grain.

There have been no official Soviet statements on the size of this year's total grain crop. Unofficial comments made during the past few weeks, however, highlight this year's uncertainties. In early September, officials of *Exportkhleb*, the Soviet grain trading agency, told the U.S. economic counselor that the crop would be 208 million tons, mirroring U.S. grain trade expectations and possibly the reduced prospects for the Kazakhstan harvest. Later, Soviet Minister of Agriculture Mesyats told [redacted] that the crop would be "not bad"; others in the meeting interpreted his statement as putting production within the range of our current estimate.

#### GRAIN QUALITY

Despite prospects for near-record grain production, the quality of a substantial portion of this year's wheat is poor. Data are insufficient to determine how much or how badly the wheat crop has been damaged. Available information suggests, however, that in most of the northern European USSR the moisture content of this year's winter grain was up to twice the standard amount. Much of this grain can be dried. Excessive drying will substantially reduce its milling and breadmaking

<sup>1</sup>Secondary tillers are new plant stems that develop from lateral buds. Under proper conditions and given adequate time for development such tillers will produce additional heads of grain.

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quality, although the grain could of course be used as livestock feed. The quality of part of the spring crop will also suffer. In Kazakhstan, the inclusion of secondary tillers in the harvest will mix mature and immature grain heads, causing proportional reductions in quality.

**FALL FIELD WORK**

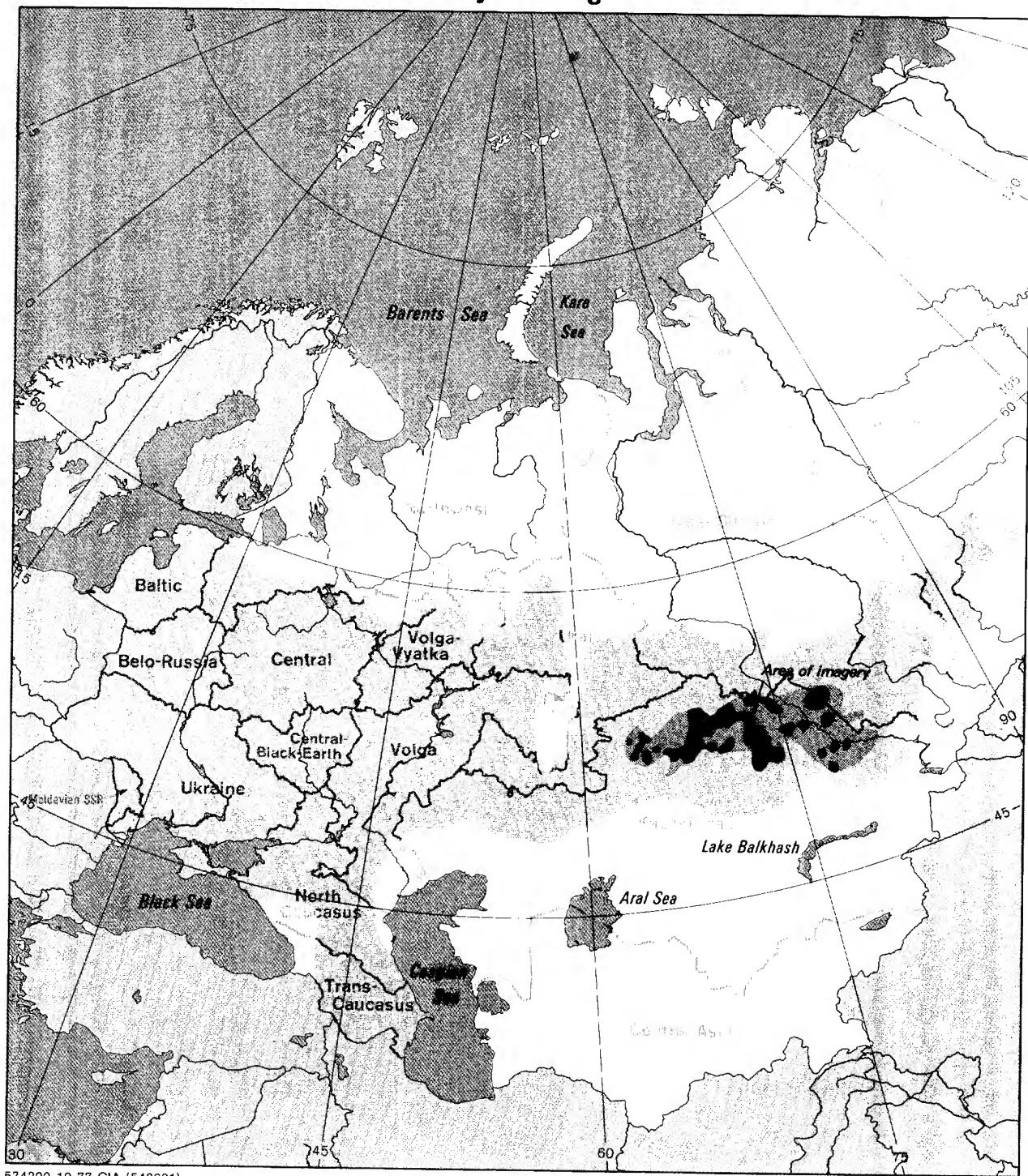
This year's wet conditions at harvest time in the European USSR have not slowed the pace of fall field work. Improved weather in September and early October permitted seeding for next year's grain crop to proceed at past rates. At the beginning of October, winter crops, mostly grain, were reportedly sown on 35.5 million hectares, roughly 85 percent of the scheduled area. In addition, more than one-half of the planned area of winter fallow had been plowed. Completion of the field activities will depend on continued good weather during the remainder of this month.

Conditions for the fall grains have thus far been satisfactory. High soil moisture levels have favored germination. Although colder than normal weather prevailed in late September there were no killing frosts. On balance, the cold temperatures are probably beneficial, serving to harden the crop before the onset of winter.

Next year's winter grain output will of course depend on snow cover and temperatures during the coming months. Soviet plans to expand the area sown to winter wheat, evident from regional seeding plans, may increase the susceptibility of the crop to harsh winter conditions. In so far as this expansion is concentrated in southern European USSR, the higher-yielding wheat varieties are more attractive and increase the potential winter grain harvest. But as seeding expands above 50° north latitude wheat becomes more vulnerable to winterkill, increasing the risk of substantial loss. In the Central Black-Earth region, for example, an average of one-third of the winter crop plantings had to be resown during each of the last 16 years; this past year one-half of the fall plantings were lost in this region.

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**USSR: Area of Significant Secondary Tillering**

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Major grain growing region

Extensive tillering

Economic region boundary

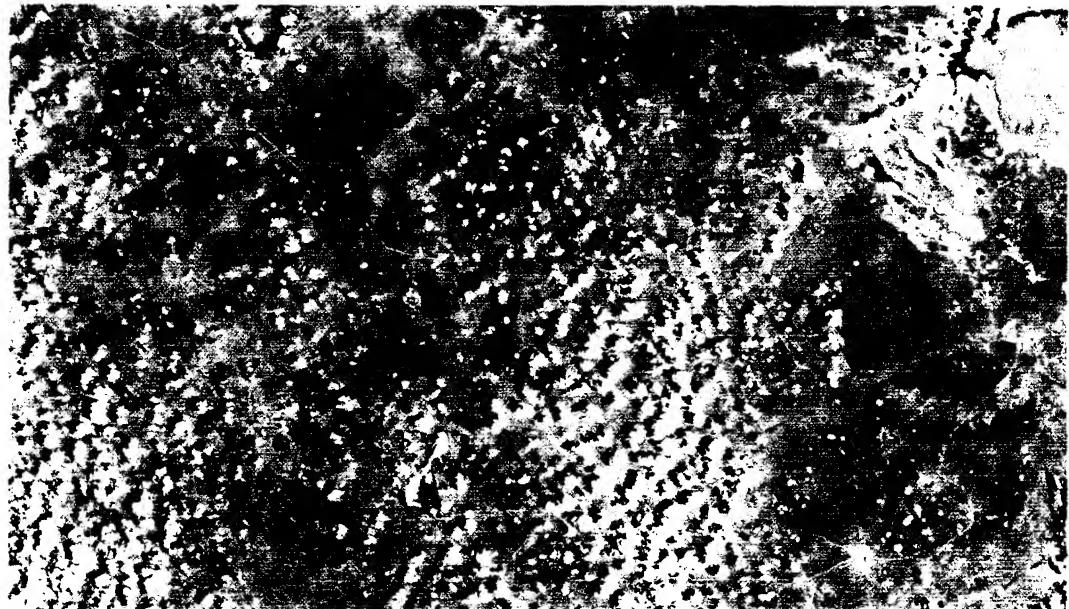
Partial tillering

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**LANDSAT II Imagery: Northern Kazakhstan**

**Image A. Early July 1977**



Infra-red imagery provides a vivid example of the extent of secondary tillering this year in a major spring wheat region and demonstrates the sharp contrast with last year's more normal conditions.

Image A: Infra-red reflectance is practically non-existent indicating that crops are under severe moisture stress. Under normal conditions the crops should appear bright red by early July.

Image B: A bright red return in late August, when the crop normally would be harvested, shows significant secondary growth prompted by late season rainfall.

Image C: In 1976 lack of red return in this area indicates that crops had already ripened and that harvesting was nearly completed by early August.

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Image B. Late August 1977



Image C. Mid-August 1976



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